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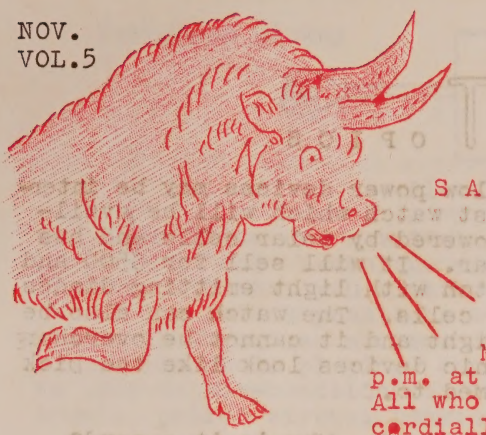

BULL-ETIN

S A N A N T O N I O R A D I O C L U B
President - Bill Ross K5LLK
V.Pres. - Daniel Percifull K5ILE
Secretary - Larry Scott WB5GVD
Treasurer - Frank Box WA5VFM
Sgt-at-Arm - Lynn Birdsong WN5IPV

Meets first and third Fridays at 7:30 p.m. at the Red Cross Building, 90 Brees St. All who have an INTEREST in amateur radio are cordially invited to attend.

Bull-etin Editor, Dean Davis W5BGE Asst. Ed., Maybelle Davis, XYL
Circulation Mgr., Bob Via WB5FDT

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ROSS RAPS

THE HIGH COST OF HAMMING

By K5LLK Bill Ross

Thru the years there have been two types of hams. The type you hear about and the type you hear. The type you hear about are the workers. They are the traffic handlers, the experimenters, the ones always there on Field Day and during emergencies and the ones who organize the numerous activities of fellowship or fun we have all enjoyed. The type you hear are the ones who seldom accomplish anything but are always complaining about the rotten deal they received or the idiotic rule some lid proposed. If they propose anything it is usually after and in direct opposition to a proposal or accomplishment of another.

During the past few years many new rules have come into being that surely limit the traditional latitude hams have in developing new methods of communication. These rules all resulted from hams asking for them. Although there was severe criticism by hams in general it would appear that an insufficient number feel strongly enough to ship fourteen copies of "why" they objected to the FCC.
The FCC recently proposed deletion of 1 Mhz of the 200 Mhz band from amateur operation for use for CB operations. We all complained bitterly. How many of you paid the price of fourteen copies and a stamp to make your objections heard? How many are willing to pay the high price of Hamming?

On 15 Nov. SARC's meeting program will be aimed at new and prospective hams. "The Ham's Wide World", the excellent film produced by ARRL, will be shown and the club station will be in full operation for the benefit of all who have an interest in amateur radio. Bring the kid down the street, or bring an old timer who has been QRT.

On 17 Jan. SARC will have their second annual Old Timers' Night. All QCWAers, and Old Timers are invited as guests of honor to renew old acquaintances and memories. For nostalgia there will be a review of ham radio as it looked in 1928. Bring your rotary gap, wave meter, audions or any other piece of ham history and tell the young guys what it was like back "when".

73, Bill K5LLK.

CODE AND THEORY CLASS

SARC began a new class on Code and Theory directed at obtaining a novice license. Classes to be held on Tuedays and Thursdays, 7:30 p.m. started Nov. 6 at the Jewish Community Center at 103 W. Ramport (two blocks south of North Star Mass). Cost will be $5 per person. Theory will be handled by Bob Wigton WA5WON and Code will be taught by Bob Wheaton W5PKK.

TECHNICAL TOPICS

By W5LFM. Cal Graf

The amateur interested in low power devices may be interested in the following wrist watch which will be available soon. The watch is powered by solar cells and has the fancy name of Synchronar. It will sell for $500 and uses solar cells on the face of the watch with light emitting diodes as the time display at the edge of the cells. The watch can also be charged using a regular incandescent light and it cannot be overcharged. More and more the various electronic devices look like the Dick Tracy wrist TV which we are so accustomed to.

This brings us to the subject of the QSL card. Why is it a card? Can it not be something else? We now have a number of new devices which can convey communications, other than a card. It's true that a card (or letter) can be mailed but so can other items. Consider the audible or visual QSL of the future which could be an audio magnetic tape recording of the actual contact or it could be a scope photo of slow scan TV or of a facsimile or radio teletype message. These are all means of preserving a record of the contact even tho the operator's station log is the only official FCC record. Remember, QSL means "Can you acknowledge receipt?" and there a number of ways this can be done. QSL? Anyone?

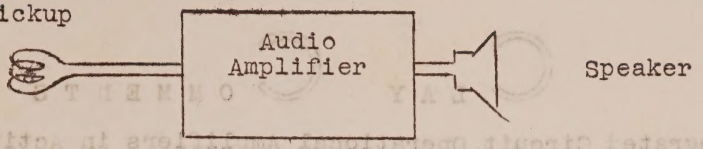
Speaking of identification brings us to a recent device which identifies individuals electronically and automatically by their fingerprints. A person who seeks to prove his identity provides a machine with his identification number, then puts his right index finger on a square in the machine. The machine matches the fingerprint with one already stored on a small holographic film. It the prints match the machine unlocks the plant door, gives the moneyor whatever is involved. That's not the way Jimmie Valentine would have done it! He used sandpaper to get rid of his prints and get a smoother feel!

At a recent meeting of the SARC, the writer gave a brief demonstration of the HUMBUG. This recent "invention" is a very simple device as can be seen from the block diagram. The antenna consists of a telephone pick-up, a medium high gain audio amplifier, and a speaker all of which can be bought at the local radio stores. The object is to "Explore the World of Changing Magnetic Fields" and this is what the HUMBUG does. What you now have is a radio receiver which will pick up signals in the frequency range from about 10 hertz to 10 khz, depending on the audio response of the amplifier. The receiver is untuned and you will hear any signals whick are strong enough to pick up with the little probe antenna. But there must be a changing magnetic field, that is, changing current in an inductance.

You will be surprised how alive the world around you is but you have never listened in that domain--the Humbug will let you do this. You will be able to listen to electric clock motors, deep freeze motors and fans, locate covered electrical power supply mains to within a quarter inch, listen to electronic and electric wrist watches hum and tick (count them on a scope for time adjustment), locate and isolate fluorescent light ballast faults, amplify both ends of a telephone conversation, listen to electronic pocket calculators compute (EDN magazine had an article of yours truly in the 5 Sept 73 issue titled "Pocket Calculator Radiation Can Be Heard on Radios and TVs" and you heard it first at SARC), etc.

By making a larger antenna than the telephone pickup using two pieces of wood, 5 ft. long, crossed as an X and wound with 5 to 10 turns of hookup wire, you will be able to listen to VLF natural emissions (lightening) such as clicks, pops, tweeks, and on rare occasion, even a whistler. If you bring the small antenna near a TV set you can hear the vertical sync and tell if the picture is rolling even with your eyes closed.

When you bring the antenna near an automobile it becomes alive with signals. You can separately hear the whine of the AC alternator, the solid-state voltage regulator, check distributor timing, spark plug firing, the signal flasher, windshield wiper motor, etc. When you bring the antenna near the gas gauge or the gas tank sensor, you will hear a ticking sound, faster when full and slower when going empty. A Humbug can be installed in a car with sensors to the plugs



Block Diagram for HUMBUG

and distributer and a switch to select the desired item to be audio monitored. This technique will tell you a lot about the performance of your auto that you might not be able to observe with other methods. One of the switch positions might go to a microphone outside the car so that you can monitor outside sounds which are masked by car noise, the radio playing, and with the windows rolled up tightly as is done in air-conditioned Texas. You could hear approaching fire trucks, police sirens, honking hams, and the like. Regards for now.

Cal Graf, W5LFM.

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I N M E M O R I A M

It is with deep regret that we record the passing of these friends,

W5FA - R. E. "Army" Armstrong (For details see page 7.)

Mary Amy "Pinky" Connaway, mother of Jerry W5KLV, though not licensed amateur was a member of SARC and an avid supporter.

Father of Lee Ulrey K5HZR in Illinois.

WA5RST - Howard Beckleman, a long time SAer and active amateur.

S P L A T T E R: Lee K5HZR is newly elected Net Manager of the 7290 traffic net. James WA5YEA (New Braunfels) is the Net Secretary..... Denmark and the U. S. have signed an agreement providing for amateur reciprocal operating privileges, effective Nov. 10.....License about to expire? On one of the nets a few weeks back I heard a question concerning whether a ham could operate beyond the expiration date of his license if he had sent in an application for renewal. I looked it up finally and here is my conclusion: It depends on whether the application for renewal was submitted at least sixty days before the scheduled expiration date. See FCC R & R 97.47 (a). The ham may continue to operate beyond the scheduled expiration date if he submitted the renewal application at least sixty days in advance and if he has not been notified that his renewal application has been approved or denied: he may continue to operate until such approval or denial is received. The ham must cease operations on the date of expiration if his application for renewal was submitted less than sixty days prior to date of expiration.....Have you heard about birthday candles painted with color code? Instead of putting 47 candles on the cake, you put on one candle with a yellow-purple and black stripe.....A good way to save money.....ARRL Net Directories are ready. The 1973 ARRL Net Directory listing almost 600 public service nets registered by June 1, is now available. This year the directory has been produced in booklet form, similar to the repeater directory. To receive your copy by first class mail, send a self-addressed envelope six-and-a-half by nine-and-a-half inches, or larger, with 24 cents US postage to ARRL. To receive both the net directory and the repeater directory--put 40¢ postage on it.....Are you familiar with Sec. 97.87. (a) of the FCC regulations? Amateur Station identification requirements stipulate that the last transmission of your exchange must include your own call sign. This is a common oversight during contests and has resulted in FCC Citations. The traditional practice of placing the transmitting station's call last or preceding by "de" is acceptable for identification. For phone operation, the voice equivalent is acceptable.....The Texas Slow Speed CW Net now meets daily, 8p.m., on 3748 Mhz.--a good way to brush up on your CW and at the same time learn the handling procedure on CW.....Then you can move to the Texas CW Net on 3770 Mhz. 7 and 10 p.m. daily.....If you are interested in checking into a phone traffic net, the Texas Traffic Net meets daily 6 to 7 p.m. on 3961 Mhz. Both Texas and out of state tfc is handled.....Dean W5BGE.

CLAY COMMENTS

Integrated Circuit Operational Amplifiers in Active Filters

By CLAY W5ZPV

Due to technical difficulties beyond my control (a trip to the Washington DC area, an extended trip to Europe for the Air Force, and a multitude of "Honey Due" jobs around the QTH), the teletype demodulator has not been assembled in final form. However, this will be a good opportunity to discuss OPAMP active filters and some basic circuits. The circuit in Figure 1 was breadboarded in the ham shack and all indications were that this circuit will serve as an active filter for a frequency shift teletype demodulator.[1] Two of these circuits were constructed and LED indicators were connected to the outputs to show when energy is detected (see Figure 2 for a block diagram of this test set-up). When frequency shift teletype signals were tuned in on the SP600 receiver, the receiver's audio output was sufficient to trigger the LEDs and show alternating MARKS and SPACES from the teletype signals. Encouraged by these test results, the author is currently assembling a frequency shift demodulator in a small minibox. Circuit details and a printed circuit card layout will be available for the next SARC BULL-ETIN.

The active filter circuit in Figure 1 employs a unity gain OPAMP configuration and works satisfactory in the audio range of a few hundred Hz to 5,000 Hz. Probably, the circuit will work at much higher frequencies but this is not applicable for conventional HF teletype communications. The filter peaks at a frequency which is related approximately to the RC time constant of R and C. If C is set at 0.005 microfarads, R is adjusted to provide maximum response at 2200 Hz. For a 800 Hz frequency shift, a second filter will be required at approximately 1400 Hz. The value of C in this case will be approximately 0.0068 microfarads. Thus, with the appropriate capacitor and the variable resistor (potentiometer), frequency shifts within the audio range of the receiver's output can be detected and translated to radioprinter signals for driving a teletypewriter.

The use of LEDs offer an excellent tuning aid for peaking the received signals within the proper bandpass of the filter. The author is currently investigating the best point in the circuit to use the LEDs. As indicated in Figure 2, a LED is tied to the output of each filter stage. An alternate point of connection would be to connect two LEDs across the output of the final OPAMP; one forwarded biased to show positive signal levels; and one back viased to show negative signal levels.

OPAMP active filters can be designed to provide gain up to 35 to 40 decibels with Q values ranging up to 10 for frequencies as low as 100 Hz.[2] Details on design parameters for these circuits will be reported on in future SARC BULL-ETINS. One big advantage in using OPAMP active filters is that bulky inductors and LC circuits are not requited. Better still, improved performance and lower costs can be realized.

References:

1. MARK/SPACE DEMODULATOR EMPLOYS ACTIVE FILTERS, Michael J. Gordon, Jr., ELECTRONICS, July 19, 1973.

2. SIMPLE ARITHMETIC: AN EASY WAY TO DESIGN ACTIVE BANDPASS FILTERS, Ferrell G. Stremler, ELECTRONICS, June 7, 1971.

73, W5ZPV Clay.

For Figure 1 and Figure 2 see Page 5.

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BOY SCOUT JAMBOREE

A group of SARC members headed up by Lynn WN5IPV invaded the McGemsey Scout Park on Sat. Oct. 28, and set up a 40/80 trap doublet, 20 M. Beam and a 15 M. long wire in order to provide the Scouts with communications to other Scout Jamborees throughout the U. S. Many contacts were made both in the novice bands and the general band with similar set-ups at other Scout camps. Many assisted in this operation, among whom were Bill WN5KKN, John WA5IFR, Homer K5MEN, Roy W5EYB, Jim K5UKN, Ed WA5ZEG, Joe WA5OMB and many other Scout-minded hams. The ARRL's "Wide World of Hams" movie was shown to about two thousand Scouts. The Scouts seemed interested in this operation.

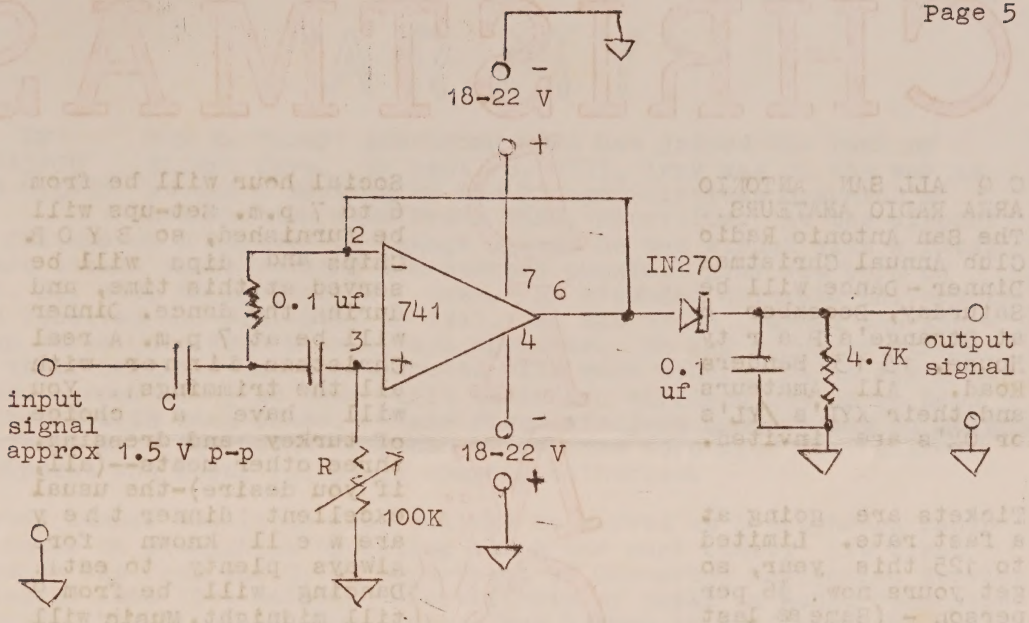

Figure 1. OPAMP Active Filter Circuit

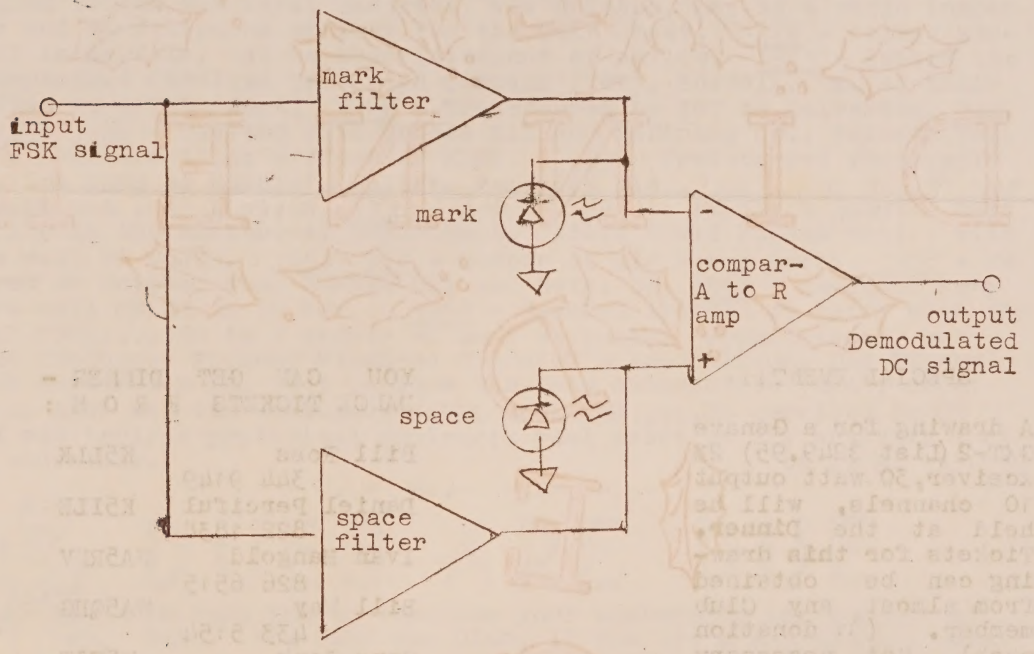

Figure 2 OPAMP Active Filters Used in Teletype Frequency Shift Demodulator. de W5ZPV.

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LIGHTENING STRIKES AGAIN:

Dick & Jane Eastman WA5KYX/JFZ (New Braunfels) had this experience: Lightening struck their Quad, came down the co-ax, into the house, disintegrated wire on the driven quad element, ripped open co-ax, on both the 20 mtr. & 80 mtr. antennas--blew the antenna switch apart--went into the A.C. lines and damaged the hot water heater. Luckily all rigs were disconnected from the co-ax and unplugged. Did get the rotator switch via its cable (switch was unplugged also). Their tower was grounded--but that won't stop some of the charge from coming in via co-ax or other lead in.....Lightening arrestors are fine for static electricity--but not for lightening, (best ones are home made with HEAVY elements). A return to the old fashioned lightening switch whick disconnects the lead in and grounds it, would be the best protection. Kind of hard with co-ax, but a double pole double throw type, using HEAVY blades could do the job. RE-READ ARRL HANDBOOK on the subject "Lightening Protection".

de Texas CW Traffic Net Bulletin.

CHRISTMAS DANCE DINNER DANCE

C Q ALL SAN ANTONIO AREA RADIO AMATEURS!. The San Antonio Radio Club Annual Christmas Dinner - Dance will be Saturday, December 8 at Strange's P a r ty House. 1513 Bandera Road. All Amateurs and their XYL's /YL's or OM's are invited.

Tickets are going at a fast rate. Limited to 125 this year, so get yours now! $6 per person - (Same as last two years). H i g h School Club members & their dates are half-price - (same as last two years.) So Hurry!

Social hour will be from 6 to 7 p.m. Set-ups will be furnished, so B Y O B. Chips and dips will be served at this time, and during the dance. Dinner will be at 7 p.m. A real Christmas d i n n e r with all the trimmings!!! You will have a choice of turkey and dressing, three other meats--(all, if you desire)-the usual excellent dinner t h e y are w e ll known for: Always plenty to eat!! Dancing will be from 9 till midnight. Music will be played by the popular "Pepe" Rodriguez. Wear your dancing shoes a n d be prepared to "trip the light fantastic."O l e !

SPECIAL EVENT!!!

A drawing for a Genave GXT-2 (List $249.95) 2M xceiver, 30 watt output 10 channels, will be held at the Dinner. Tickets for this drawing can be obtained from almost any Club member. ($1 donation each). Not necessary to be present to w in!

Decoration Committee: Hazel Albright, Virginia Essington, Peggy DeLay & Maybelle Davis. Chairman of Arrangements - D e a n W5BGE.

YOU CAN GET DINNER - DANCE TICKETS F R O M :

Bill Ross 344 9149	K5LLK
Daniel Perciful 822 1838	K5ILE
Ivan Mangold 826 6515	WA5RNV
Bill Way 433 5154	WA5QHG
Gene Jank 342 2225	W5EJT
Roy Albright 822 7269	W5EYB
Frances Breummer 344 5134	W5KQG
Bob Wheaton 695 8430	W5PKK
Frank Box 734 5893	WA5VFM
Dean Davis 735 1622	W5BGE

DEC 8

S. A. Radio Club

"ARMY"

By WA5PCU J B GODWIN

Roy E. "Army" Armstrong W5FA has joined the rank of Silent Keys. On Sept. 6, 1973, Army was on the way to attend a meeting of the Pioneer Wireless Operator's Association with Frank K5RS, Kerrville. At the airport in Chicago on a layover to change planes he was struck with a fatal heart attack while working a crossword puzzle. Army was born on Oct. 26, 1893 in Springfield, Mass. He attended Columbia University and received his B.S.-E.E. in 1913. At age 11 he learned the American Morse Code from a telegraph operator. He and a friend strung up their own line and communicated with each other. At 13 his buddy moved across town, so they built their own wireless set up to keep in touch with each other. Their first wireless contact was on July 4, 1906, with equipment they had built from scrounged B&A railroad equipment and local telephone company batteries.

During summer vacations from college he served as a shipboard radio operator on steamships operating along the east coast. His first license was from the U. S. Department of Commerce, Navigation Service dated 28 June 1911 entitled "Certificate of Skill in Radio Communications". His first amateur license was issued in 1913 with the call letters of 1RN.

Some of the milestones of his background are as follows: 1909 - Assigned as radio operator aboard S.S. Camden. Spark-Gap Pioneer No. 975 recognition. 1917-1919 - Ensign on active duty assigned to the 8th Naval District, New Orleans, La. as a radio inspector and intelligence officer for the Gulf Coast. 1920 - Joined Marconi in Norfolk, Va. as superintendent of office. 1921 - Joined the Independent Wireless Telegraph Company (IWT), Norfolk, Va. as their office superintendent. 1922 - Transferred by IWT to Galveston, Tex. 22 Dec 1922 - Started with Humble Oil and Refining Co., Baytown, Tex. as a Communications Officer at KDPS. 1930 - Transferred from radio station KDPS to Humble's Baytown Refinery Elec. Dept. for electronics design and installation. 1935 - Transferred to Humble's Houston main office in the Electrical Department. After WW-II became active with the call of W5RIH. 1953-1962 - Member of Air Force Mars. 1958 - Retired 26 October from Humble Oil and Refg. Co. 1962 - Assigned Navy Mars call NØARZ on 30 Nov . 1968 - Updated license to extra with the call W5FA.....He is a member of many exclusive organizations, but some include: Pioneer Wireless Operator's Association; Old Timers' Club Membership No. 121; Antique Wireless Association (AWA); SOWP; QCWA; ARRL and the exclusive NAVEL OBSERVER.....He excelled in CW and was truly a proficient amateur;a real asset to any activity that he undertook.

de J. B. WA5PCU.

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DUES ARE DUE

We want YOU to continue your membership and support of SARC. You need the Club, if you are a San Antonio area amateur. THE CLUB NEEDS YOU! Your dues payments help defray necessary club expenses, and insure that you will continue to receive the clut BULL-etin wherein you can keep abreast of radio amateur activities in this area. Mail your annual dues ($6.00 check, please) to SAN ANTONIO RADIO CLUB, 1431 West Hollywood, San Antonio 78201. A membership card will be mailed you.

.....

SARC MEMBERSHIP - APPLICATION/RENEWAL

NAME _____ CALL _____

ADDRESS _____

CITY _____ ZIP _____

ARRL Member _____ AREC _____

(Dues $6 per year) - Mail to San Antonio Radio Club, 1431 W.Hollywood San Antonio, Texas 78201

COMMENTS FROM THE ARRL DIRECTOR, WEST GULF DIVISION

During the past five years it has been my privilege to visit and work with numerous radio clubs. Some are surging with energy, bulging with members, and making valuable contribution to amateur radio. At the other extreme, some appear to be lacking whatever it takes to obtain growth and maintain interest. It would appear the basic problem with those in the latter category is lack of imaginative leadership. This results in a practice of having nothing but interminable "business" meetings in place of viable club programs. As a result of my experiences and observations I should like to offer the following opinions and recommendations in the hope they might be of assistance to clubs:

In order to attract and maintain interest in our clubs every meeting needs to be planned and executed with predetermined objectives, on a time schedule, and with participation by as many members as possible. Somehow, means must be found to provide advance notification to members, and non-members, of the agenda for each meeting.

It is recommended that clubs in larger communities establish subsections among the members and encourage these subsections to hold additional meetings for work on projects, study sessions, classes for those aspiring to advance their license class, koffee klatches for discussion etc., pertaining to their particular interest. Haven't you, at some time or other wished you had the opportunity to sit around a table and discuss some aspect of radio with a knowledgeable local amateur, someone perhaps with whom you would otherwise have no contact? These additional, smaller group meetings provide opportunity for more individuals to actively participate and work on projects than is possible in the regular club meeting sessions. They can be held at members homes, local cafes, etc.

Reports of subsection activity which contain items of general interest can be brought to the club by designated spokesmen. These groups could analyze and summarize complex items of general interest within the purview of their specialized activity and provide informed recommendation for club action.

Suppose, for example your club organizes its members into Traffic, Experimental, DX, FM, VHF(other than FM), CW, QCWA, Contest, Regulations, Public Relations, and possibly other subsections. The Traffic Section could be called upon to present a program on the National Traffic System (badly needed by many amateurs), the Contest Section a program on the forthcoming 10-Meter Contest, Straight Key Nite, etc; QCWA might operate an Amateurs Widows Assistance activity, CW, Experimental, and Regulations can operate "Show and Tell" nights, Equipment Trading Nights, furnish instructors for license classes, and so on. The possibilities are limited only by the imagination.

It would be presumed the board of directors of the club would handle essentially all routine club "business", including assignment of program responsibility to appropriate sections. Once basic organization is completed and the system is in full operation and producing results, the Public Relations Section could swing into action and let the entire community recognize it has a valuable local asset. It appears axiomatic that club membership will grow in direct proportion to club activity and public awareness. THINK IT OVER.

73, ROY L. ALBRIGHT, W5EYB, Director.

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FIRST CLASS